

CALIFORNIA MICROLEPIDOPTERA V
(Gelechiidæ)

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Since publishing the last installment of this series (No. IV, PAN-PACIFIC ENTOMOLOGIST, Vol. 7, p. 27, 1930), the ranges of the two Gelechias described have been extended. Adults of *Gelechia manzanitæ* Keifer were taken at light at Zephyr Point, Lake Tahoe, Nevada, September 1, 1930. Adults of *Gelechia arbutina* Keifer were taken at light, September 5, 1931, at Mount Hermon, Santa Cruz County, California. I am now fairly certain that *manzanitæ* overwinters in the larval stage. As was stated in Article No. IV, the larvæ of this species are to be found on overwintering leaves before the spring growth has started. The finding of small caterpillars between closely tied Manzanita leaves at an elevation of about 4000 feet, Placer County, February 22, 1931, which are undoubtedly referable to this species, strengthens this assumption. I also have recently noted similar small larvæ wandering from dry Manzanita leaves taken near this Placer County location, August 23, 1931. *Gelechia arbutina* bears the same relation to Madrone. The fundamental difference in the life history of *Gelechia panella* Busck is that the adult hibernates. An adult of *panella* was flushed from a dead pine stump last February at an altitude of about 1000 feet in El Dorado County, California.

The species described as *Epithectis californica* in the above mentioned installment is properly referred to Meyrick's genus *Leucogonia*. This species is very closely related to *subsimella* Clem., and probably can only be differentiated by means of the male genitalia.

***Eucordylea mackiei* Keifer, n. sp.**

The adult is a small gray moth with slight black tufts of scales on the forewings and a central longitudinal black streak on the outer two-thirds of these wings, which streak separates the whiter anterior half from the darker posterior. The caterpillar mines in Manzanita berries and is brick red in coloration.

Alar expanse 9-11 mm. Fore wings white, overlaid somewhat unevenly with fuscous irroration, costal half slightly lighter. A black

dot just within base on the fold. An oblique dark fuscous, rather indistinct, band from costal base, ending in fold and followed by white in the fold (internal edging of plical stigma). An elongate black spot within costa at one-fourth, in a rather large whitish area. A very short blackish outwardly oblique dash on costa just before one-half, opposite which the plical stigma, a small black tuft, is preceded and followed by white. Between these the first discal stigma, a black scale tuft, is narrowly circled by white. A blackish central longitudinal streak begins just before first discal, is partially interrupted by the lower half of this stigma, is again interrupted at the apical third by the lower half of the second discal stigma, and ends well within the apex. The second discal stigma is a small black tuft circled by white and connected by a short transverse white line to another small black tuft within tornus. A faint thin white fascia sometimes present within apex from beginning of costal cilia, running obliquely outward to end of central longitudinal black streak, thence back to tornus. Blackish blotches often distinguishable on basal side at ends of fascia, especially on costa. A row of black spots around apex of wing on margin, more or less edged with white inwardly. Cilia fuscous white, irrorated fuscous on costa and around apex (no irroration on tornal cilia), with a fuscous line running around apex in cilia. Hind wing and cilia creamy white, slightly overlaid with fuscous, males with a light ochreous thin hairpencil from dorsal base. Antennæ with basal joint fuscous; flagellum of female slender, alternating whitish and fuscous annuli on basal half, fuscous apically; male antennæ all fuscous and thick. Palpi white, second joint with dark fuscous base and central and ante-apical broad dark fuscous annuli, confluent above, incomplete on inner side; tip of joint narrowly white, tuft of male creamy white, slightly fuscous apically; a slight fuscous coloring at base of terminal joint, a fuscous annulus just below middle and a broad fuscous annulus just below tip. Head creamy white irrorated with fuscous above. Thorax white, more or less infused or irrorated fuscous, in some specimens with four black spots, two just behind head and two, slightly tufted, before apex of thorax; patagia as thorax or lighter. Abdomen whitish, slightly fuscous, more fuscous laterally. Male genitalia (Figure 1) asymmetrical; tegumen nearly symmetrical; no lateral projections; uncus broad; right harpe long and slender, inclined to the left from base and strongly recurved to the right distally (as in *Recurvaria*); left harpe nearly straight, slender, shorter than right harpe; vinculum asymmetrical and holding the anellus on right side; ædœagus a slightly tapering tube somewhat ventrally curved. Female genitalia as in Figure 2.

Holotype, male, No. 3588, Museum California Academy of Sciences, reared June 16, 1930, from a larva mining in the pulp of a Manzanita berry (*Arctostaphylos* sp.) which I col-

lected May 30, 1930, about three miles northwest of Pentz, Butte County, California (Clear Creek). Allotype, female, No. 3589, Museum California Academy of Sciences, with the same data as the holotype except that the larva was taken June 2, 1928, and the adult emerged June 13, 1928. Fifty-six paratypes are in the series from the same locality, the larvæ collected June 2 and 6, 1928, and May 30, 1930; adults emerging approximately from June 6 to June 28. Paratypes are distributed to the United States National Museum and to Miss Annette F. Braun. I take pleasure in naming this species for D. B. Mackie, senior entomologist, California Department of Agriculture, who noted these larvæ in Manzanita berries while investigating for possible native hosts of the Mediterranean fruit fly.

Besides the type locality there are a number of specimens from other California localities: Marysville Buttes, Sutter County (Keifer, collector); Crescent Mills and Mohawk, Plumas County (M. L. Jones of the State Department of Agriculture, collector); Clarksville, El Dorado County (Keifer); Tuolumne County (A. C. Browne of the State Department, collector); Towle and Cisco districts, Placer County (Keifer); Zephyr Point, Lake Tahoe, Nevada (Keifer); Emerald Bay, Lake Tahoe, California (Eleanor Fourness, State Department, collector). Several species of *Arctostaphylos* are infested in this range, which includes elevations from 500 to 7000 feet.

Below an elevation of approximately 4000 feet larvæ are to be found in Manzanita berries through May and June. Above this elevation the species of Manzanita fruit much later in the season and larvæ can there be collected from late July to early October. Very likely there are gradations between the times mentioned, but with the possible exception of the Plumas County specimens they have not been observed; they do not occur in contiguous areas. Adults from the higher elevations tend to be markedly larger (up to 13 mm. expanse) and darker than the lower forms, but have the same color pattern and genitalic characters. The fall larvæ produce adults in the laboratory during September, October, and even as late as December.

Larva: 5-7 mm. long when full grown. Body rather light ochreous or light brown-ochreous, with a slight whitish cast except where overlaid with brick red. This red color on all body segments except

first thoracic; dorsal half of all segments with more red on the anterior two-thirds; second thoracic whitish on anterior margin; each segment increasingly overlaid with red; fifth, sixth, and seventh abdominals with only whitish dorsal spots (which include seta II) and a lateral spot; segments eight, nine, and ten all red. Ventral surface generally flecked with red. Tubercles small, slightly fuscous, hairs moderately long, whitish. Crochets 22 to 24, unevenly biordinal, weak outwardly. Thoracic shield ochreous brown, spotted or slightly overlaid with fuscous. Anal shield as thoracic shield. Head clear ochreous; intraocellar area fuscous. Pupa: 4-4.5 mm. long, brown, glabrous, rather slender. Maxillæ ending at convergence of the antennæ and separating the mesothoracic legs. Wings, antennæ and hind legs ending just within posterior margin of fifth abdominal segment. Sixth and seventh abdominal segments with anterior suture of each flexible. No cremaster at tip of abdomen; hooked hairs present.

The larval habit of *Eucordylea mackiei* is purely that of mining through the pulp of the Manzanita berry. A surface discoloration may usually be noted, and often the gallery which was made by the newly hatched larva is visible just under the surface. The larval coloration is much the same as that of many Manzanita insects and approximates the color of the limbs. Apparently the female of the lower altitude form overwinters, as the egg must be deposited on the berry. In high altitudes it is probable that at least part of the individuals hibernate in the pupal stage.

Besides this new species, *Eucordylea* contains three other species, all North American. I have not surely seen any of these, but by their descriptions offer the following comparative notes. *E. atropictella* Dietz is eastern and differs notably by the presence of a heavy oblique blackish band from about the middle of the costa to the fold. *E. elucidella* Barnes and Busck is a southern California species, but lacks the black central longitudinal streak on the fore wing. *E. gallicola* Busck is very similar to the new species, but has palpi which are possibly colored differently and breeds in sawfly galls on willow; it was described from Colorado. The symmetrical tegumen of the male genitalia of *mackiei* is a specific character, as a male which is probably *gallicola*; has a large projection from the right side of this structure.

Exoteleia burkei Keifer, n. sp.

The larva of this moth bores out a central longitudinal gallery in developing buds of Monterey Pine in the early spring, causing the young shoot to droop and die. The adult is a small dark grayish brown moth, with three whitish transverse fasciæ, edged by black tufts, and bright orange coloring between these fasciæ.

Alar expanse 8-10.5 mm. Fore wings shining, ochreous brown; outlined, usually narrowly, by whitish scales bearing a broad ante-apical fuscous or blackish fuscous shade and tipped white; these scales usually covering most of area below fold. Usually a small blackish or dark fuscous scale tuft within central base. White transverse fasciæ at one-fourth, one-half, and three-fourths, respectively, the central widest. First fascia from costa ending on dorsum, more or less edged and slightly invaded by dark fuscous irroration; edged inwardly on both sides of fold by blackish raised scales. Second fascia from costa to dorsal margin, expanding dorsally, mostly overlaid on apical side with dark fuscous irroration, edged inwardly from center of wing to fold by blackish raised scales and outwardly by blackish tuft just above end of fold. Ante-apical fascia somewhat invaded by blackish fuscous irroration. Apical margins from before fascia on both sides lined with blackish fuscous scales slightly tipped white. Cilia irrorated fuscous and white except at tornus, which is fuscous. Hind wings whitish overlaid brown fuscous, cilia light fuscous. Abdomen fuscous, tip and underside yellowish white. Antennæ with basal joint fuscous brown, the flagellum with alternating brown and whitish annuli, the lighter ones wider. Palpi with white scales which have an ante-apical blackish infusion; second joint whitish on innerside except anterior margin, very narrowly white at tip; terminal joint rather rough, white at base, this white extending somewhat apically on inner side, tip white. Head and thorax white but heavily infused fuscous, or brownish fuscous, and finely irrorated white; face sordid whitish, shining; thorax browner anteriorly, sometimes browner on apex, with a scale tuft darker than general thoracic color at the tip of each patagium. Legs white, overlaid dark fuscous except at apices of joints and hairs of hind tibiæ. Male genitalia with broad almost bluntly pointed uncus, harpes short, slender, acute; vinculum with a pair of "lyre-shaped" posterior arms, projecting obliquely outward at base, then curving directly caudad, setose at tips; anellus with pair of posterior projections, enlarged and setose at tips; ædœagus a blunt slightly tapering tube, curved ventrally, projecting slightly beyond tips of posterior projections of anellus (see Figure 3). Female genitalia as in Figure 4.

Holotype, male, No. 3590, Museum California Academy of Sciences, reared May 8, 1931, from larva taken April 25, 1931,

by Dr. H. E. Burke and myself, boring in a partially developed bud of Monterey Pine (*Pinus radiata* Don.) at Palo Alto, California (Stanford Campus). Allotype, female, No. 3591, with same data except the emergence date of May 14, 1931. Thirty-nine paratypes reared from the same host are included in the type series with larvæ collected at the above locality and date, and also some which I collected as larvæ on May 3 in Santa Rosa. Adult emergence dates are from May 7 to May 25. Paratypes are in the collections of the United States National Museum and Miss Annette F. Braun.

The species is named in honor of Dr. H. E. Burke, who discovered it destroying pine buds in a small stand of young pines at the type locality. The trees in Palo Alto and Santa Rosa are artificial plantings, so the original home of *Exoteleia burkei* is unknown. This is the case with a number of Microlepidoptera described from the San Francisco bay region that feed on trees not native to that area. It may be noted in passing that a Hymenopterous parasite of this moth is established at Palo Alto.

The larva of *burkei* is 3.5-4.5 mm. long. Head black. Thoracic shield dark fuscous brown, narrowly bisected. Anal shield dark fuscous brown. Body yellow, infused brownish, especially on dorsum and posteriorly. Tubercles minute, slightly darker than body; hairs rather short and slightly yellowish fuscous. Prolegs small, 4 to 5 crochets. Pupa: 4 mm. long; brown; fore legs narrowly separated by the maxillæ, which are only slightly longer. Wings, hind legs, and antennæ ending on posterior edge of fifth abdominal segment. Segments six and seven of the abdomen apparently slightly movable. No cremaster at apex of abdomen, hooked hairs present.

The damage the larvæ of this species do is rather noticeable, but apparently not very serious. In neither stand where the species was observed were enough young shoots killed to appreciably retard growth (the Palo Alto trees were not in good general condition due partly to the nature of their location) and none of the terminal buds showed signs of attack. The infested bud starts to develop, but due to the presence of this caterpillar, growth is arrested, the young shoot often droops over, and by the first of May is brown and dry. The work of *Rhyacionia pasadenana* (Kearf.) in Monterey Pine buds differs in that the bud is hollowed out before it has a chance to start growth.

Exoteleia burkei is very close to the eastern *E. pinifoliella* (Chambers). It differs from *pinifoliella* most notably in the larval habit: the caterpillar of the eastern species is strictly a needle miner. Mr. August Busck, who kindly sent me specimens of *pinifoliella*, writes: "Your Monterey Pine species has genitalia in both sexes nearly identical with our eastern *pinifoliella*; in the few slides before me I think I detect slight differences . . . but it will take many carefully dissected specimens to make sure these differences are constant. Your species has unmistakably a strikingly dark head and thorax, quite different from the light-colored eastern species, and if . . . its larva is a borer in the buds and not a leaf miner, I would consider it a distinct species. So far as I know, from many rearings in various localities, *pinifoliella* is always a true leaf miner. . . ." According to the single slide of the male genitalia of *pinifoliella* which I have from the specimen Mr. Busck sent, there appear to be a number of slight differences, as compared to *burkei*. In *pinifoliella* the base of the uncus is narrower and the sides not sinuate; the "lyre-shaped" posterior projections of the vinculum (situated just below the anellus) are distinctly more attenuate, longer, curved more sharply outward at the base enclosing a greater space, slightly recurved apically, and the tips farther apart; the harpes reach almost to the tips of these projections; the ædœagus is probably not as long. There may be a slight difference in the venation of the fore wing: 5 at base is distinctly farther from the origin of 3 plus 4 in *burkei* than in my single slide of *pinifoliella*, but this cannot be positively proven on the basis of the material at hand.

The genus *Exoteleia* Wall. contains four species besides the two noted above. Of these four, two occur in North America. *Exoteleia dodecella* (Linn.), native to Europe, has appeared on this continent within the last few years. It is somewhat larger than the new species, generally gray, and with veins 6 and 7 of the hind wings more nearly parallel. Mr. Busck writes that the male genitalia of this species is very similar to that of *pinifoliella* (and therefore to the new species). *Exoteleia californica* (Busck) is predominantly white.

***Gelechia braunella* Keifer, n. sp.**

I take pleasure in naming this Lupin-feeding, tan-colored

moth for Miss Annette F. Braun, who kindly determined the species as new for me.

Fore wings tan, basal three-fourths lightly irrorated fuscous; heavier irroration along costa; apex of wing beyond fascia darker due to general fuscous infusion. A small fuscous indistinct dot near central base, another slightly further out on costa, a third at basal sixth on costal side of fold, often opposed by another on dorsal side. Stigmata as fuscous spots: plical just beyond basal third, often edged with whitish ochreous scales before and after; first discal obliquely outward above plical, often edged with whitish scales before and after; second discal just beyond one-half, tending to run into a large transverse blotch, with whitish scales edging inner side of stigma proper; transverse fascia just before apical fourth, somewhat outwardly angulate in center, sometimes slightly lighter than ground color, irregularly edged with light fuscous irroration inwardly and noticeable blotches at costa and tornus. Darker apical area with more or less distinct tan dots around apex within margin; scales along margins slightly tipped white. Cilia tan, infused fuscous toward base. Hind wings tan, infused fuscous. Palpi with second joint tan, variable but usually cream-colored internally with slight or no fuscous irroration and with external side more or less heavily irrorated, brush somewhat fuscous infused; terminal joint heavily overlaid fuscous but with scattered light tan scales and light tip. Head and thorax tan, head above and thorax irrorated lightly with fuscous and with a slight general fuscous infusion; patagia and thorax often tipped with fuscous. Abdomen light fuscous, tipped with light ochreous. Legs tan, irrorated and overlaid fuscous except at apices of joints and hairs on posterior tibiae. Male genitalia (Figure 5), symmetrical; with broad uncus, hairy on lower posterior margins internally; gnathos moderately long, slender, pointed, downcurved; harpes long, slender lanceolate, curved downward and somewhat inward; anellus represented by a setæ, bearing projection at base of each harpe; ædœagus rather long, slender, curved somewhat dorsally and enlarged apically. Female genitalia with posterior half of ductus bursæ chitinized; bursa and anterior half of duct set with minute spinules; signum as in Figure 6. Alar expanse 16 to 18 mm.

Type, male, No. 3592, Museum California Academy of Sciences, reared May 25, 1928, from a larva taken by the writer on *Lupinus albifrons* var. at the Marysville Buttes, Sutter County, California, May 2, 1931. Allotype, female, No. 3593, Museum California Academy of Sciences, reared June 1, 1928, from same host, larva taken near Oroville, California. Paratypes include specimens from Phoenix Lake, Marin County, reared from *Lathyrus vestitus* Nutt.; specimens from Pentz and Yankee Hill, Butte County, hosts: *Lupinus albifrons* var.

and *Lathyrus sulphureus* Brew.; and examples from Big Bend Mountain, Butte County, altitude 1500 to 2000 feet, hosts: *Lathyrus sulphureus* and *Lupinus* spp. In some specimens, especially the higher Sierran individuals, the fuscous coloring tends to evenly cover the entire wing surface.

Description of larva from Phoenix Lake, Marin County: Length 12 to 14 mm.; head and shield black, remainder of prothorax and entire mesothorax a very dark reddish brown or purplish black; metathorax ringed with white anteriorly, but otherwise concolorous with abdomen, which is whitish or creamy white; six reddish or brownish red longitudinal stripes, somewhat broken and irregular, occupy the dorsal half of the body from the anterior white ring of the metathorax to the ninth abdominal segment; tubercles not large, black, hairs slightly fuscous.

***Gelechia braunella arborei* Keifer, n. var.**

I give this varietal name to the coastal form of the species which occurs in the fog belt and is distinctly larger in the adult stage (19 to 21 mm. in alar expanse) and much lighter. The fore wings are light tan with much less fuscous irroration than the type, and no darker apical fifth. Instead of the tan dots within the apical margin there are interspaced fuscous dots. The transverse fascia is slightly visible, the palpi are but slightly fuscous irrorated. In genital characters, however, the variety is the same as the type.

Holotype, male, No. 3594, Museum California Academy of Sciences, reared June 28, 1927, from a larva taken by the writer from *Lupinus arboreus* Sims. May 21, 1927, on the San Francisco sand dunes in an area since built over with houses and landscaped with imported plants. Allotype, female, No. 3595, Museum California Academy of Sciences, reared May 7, 1927, from a San Francisco larva also on *Lupinus arboreus*. There are seven paratypes from San Francisco included in the series. Larvæ of this variety occur rarely on *Lupinus chamissonis* Esch. Emergence dates for adults of the species and variety throughout the entire range are from May 4 to July 15. Paratypes of the species and variety are in the collections of Miss Annette F. Braun and the United States National Museum.

The larva of the fog-belt variety is the same as that described, but the body color is infused with a grayish or light brownish shade. Thus we have darker larvæ and lighter adults on the open coast, and the opposite in the interior. The larval

habit on Lupin consists of tying together lengthwise three or four leaflets and forming a retreat therein. The leaflets are then skeletonized, or occasionally partially mined. A single larva probably forms a number of these during its lifetime. These tied leaves may be rather conspicuous on the Lupin bush. Only perennial Lupins are attacked, as far as my observations go. On *Lathyrus* (native pea) the leaves are also tied together, usually two leaves with their upper surfaces adjoining, between which the larva may be found. Sometimes there is evidence of skeletonization on the sides of this shelter, but usually the apical part of the *Lathyrus* leaf is eaten away.

***Gelechia demissæ* Keifer, n. sp.**

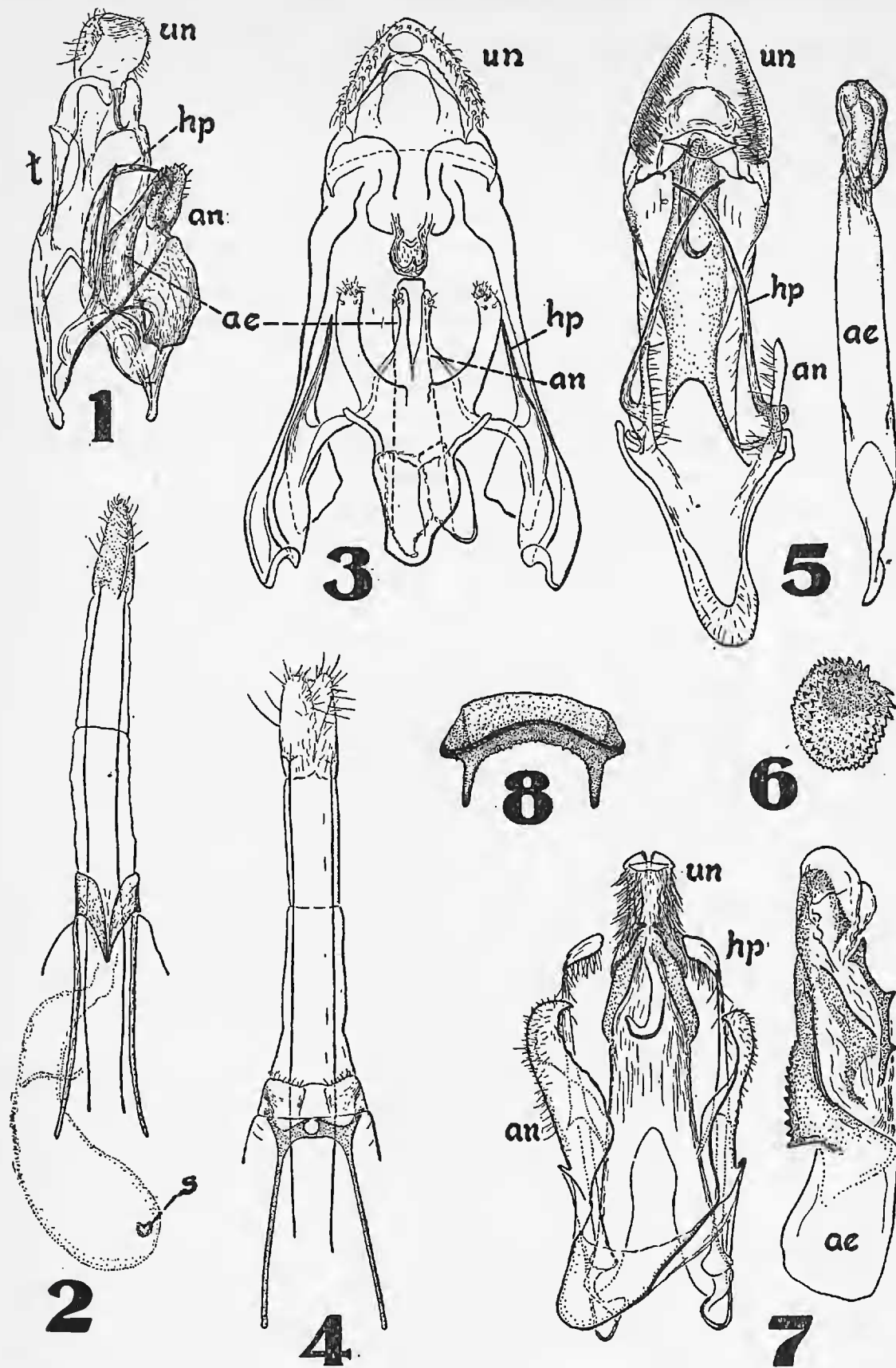
The work of the caterpillars on their food plant, for which the species is named, called this obscurely marked moth to my attention.

Alar expanse 17-22 mm. Fore wings with scales fuscous or fuscous gray, rather whitish at base, but black-tipped. General appearance dull dark fuscous. A sparse irroration of whitish or ochreous white scales over wing surface. A more or less noticeable light brownish infusion often present; in extreme forms this color overlays the costal third of the wing, the apical veins may be vaguely outlined, and it may also cover the otherwise whitish scales. Stigmata as blackish spots, usually distinct: plical at basal third preceded or followed, or both, by light scales; first discal of one or two spots (one above the other) obliquely outward from plical, usually surrounded by whitish or ochreous scales; second discal tending to be a fairly large transverse blotch at apical third, preceded or followed, or both, by the light scales. Transverse whitish fascia, somewhat outwardly angulate, at apical fifth, nearly always visible at ends and often interrupted centrally. Apical margins of wing beyond fascia lined with indistinct blackish spots, these spots sometimes rather confluent, or interspersed with light scales, or edged internally with whitish or whitish ochreous. Cilia whitish or ochreous whitish, slightly gray infused, irrorated blackish on basal half and transversely lined fuscous on apical half including tips. Hind wing whitish, generally infused fuscous which is heavier toward margins and along veins, apex somewhat darker. Cilia creamy-white infused light fuscous around apex and along outer margin. Basal half (length of cell) of underside of male hind wing beset with moderately long hair scales; these scales directed obliquely outward toward the outer angle, except row from anterior vein of cell which are directed posteriorly and are parallel. Palpi whitish but heavily infused fuscous or dark fuscous and irregularly mottled white; second joint variable but lighter on inner side, which is sometimes

almost all white, though usually only white near base posteriorly, narrowly tipped with white apically; terminal joint mottled white. Head light fuscous to whitish, irrorated with blackish, face lighter. Thorax dull dark fuscous, a slight brownish infusion, sometimes brownish apically, often two small ante-apical whitish spots. Antennæ with dark fuscous basal joint, irrorated and tipped with white; flagellum with alternately whitish and blackish annuli. Legs white, irrorated and overlaid with fuscous except at apices of joints and on hairs of posterior tibiæ. Abdomen creamy white, infused fuscous at extreme base, first three or four joints ochreous, the remainder ochreous or creamy white, infused fuscous on basal three-fourths; tip whitish; below: infused dark fuscous laterally, irrorated with fuscous centrally. Male genitalia (Figure 7) partly asymmetrical; tegumen including uncus somewhat narrow and gradually tapering, uncus narrow laterally, convex dorsally, bluntly pointed, hairy on all sides; gnathos hook-shaped; harpes spatulate, equal, rather attenuate, hairy along ventral margin, curved inward at apex otherwise straight, ending at base of uncus; vinculum and anellus asymmetrical; vinculum an anteriorly projecting lobe inclined to the right; anellus as two wide lobes ventral to the harpes and projecting posteriorly, these lobes pointed, the points bent ventrally, right lobe larger, both lobes set with small hairs on dorsal margin and outer side; ædœagus a partially chitinized tube, basal third obliquely inclined ventrally, the remainder abruptly bent horizontally, a convex saw-toothed longitudinal ridge centrally placed on dorsal right, a chitinized ante-apical longitudinal piece on ventral left, bearing from one to three spines, the anterior persistent. Female genitalia with somewhat convoluted ductus bursæ, which is heavily chitinized on posterior half; anterior part thickly set with small spines, which are largest next to the chitinized portion; bursa spinulate; signum (Figure 8) a pair of basally united spines.

Holotype, male, No. 3596, Museum California Academy of Sciences, reared June 19, 1931, from larvæ which I collected on *Prunus demissa* (Nutt.) at Mark West Springs, Sonoma County, California, May 3, 1931. Allotype, female, No. 3597, Museum California Academy of Sciences, from the same locality, which emerged June 20. The series includes twenty-three paratypes from this location that emerged from June 7 to July 20. I know of no described species having the peculiar hair scales on the underside of the male hind wings found in this species. Paratypes are distributed to Miss Annette F. Braun and to the United States National Museum.

Larva: length 13-15 mm. Head light brown, sometimes more or less fuscous infused, interocellar area dark fuscous. Shield large, dull ochreous brown, pale anteriorly, narrowly bisected. Variably



EXPLANATION OF PLATE

Fig. 1, *Eucordylea mackiei*, male genitalia; Fig. 2, *E. mackiei*, female genitalia; Fig. 3, *Exoteleia burkei*, male genitalia; Fig. 4, *E. burkei*, female genitalia; Fig. 5, *Gelechia braunella*, male genitalia; Fig. 6, *G. braunella*, signum of female genitalia; Fig. 7, *Gelechia demissæ*, male genitalia; Fig. 8, *G. demissæ*, signum of female genitalia. The lettering: æ—ædœagus; an—anellus; hp—harpe; s—signum; un—uncus.

infused blackish fuscous posteriorly, especially from the lateral posterior angles; edged with white laterally and posteriorly. Anal shield sordid yellow. Body fuscous brown, lined with white; tubercles small, fuscous, somewhat contrasting. A thin, faint mid-dorsal white line, much broken; subdorsal and supraspiracular lines, much the same but heavier. Body sparsely spotted with white between these lines. Subspiracular line white, wide, heavy, continuous. A pair of rather broken moderately wide ventral white lines running just inside prolegs. Crochets of prolegs biordinal, longer inwardly, 32-44.

The gray, white-striped larvæ of this species may be found in April and May tying the terminal leaves on young shoots of this choke cherry. Considerable damage is done the cherry, as the tips are eventually killed. The larvæ live within the mass of living and dead leaves which result from their activities and continually add to the nest, causing the tip to droop. Attempts to feed the caterpillars on cultivated plum leaves were unsuccessful, but they accepted leaves of *Prunus ilicifolia*. I do not know whether they will attack cultivated cherry or not.

GELECHIA SISTRELLA Busck

Meyrick lists this species from California (as well as Arizona) in the *Genera Insectorum*, fasc. 184, 1925. I do not know of other references reporting it from California, so offer this note for what it is worth. On October 15, 1930, F. T. Scott collected small larvæ of this moth on Alkali Blite (*Sueda morquini* Greene) at Visalia, California. Adults emerged from late October to early December, which correspond exactly to Busck's description, except that the palpi are fuscous at the base. Only small larvæ were noted, but these have the following color characters:

Head brown, more or less mottled and clouded with fuscous, especially posteriorly and at sides. Prothoracic shield lighter brown than head, more or less infused fuscous especially along lateral and postmargins; obscurely bisected by moderately wide whitish line. Body dull ochreous pink, somewhat overlaid with a faint white. Anal segment and shield rather more ochreous than body.

It is a pleasure and privilege for me to acknowledge the help of Miss Annette F. Braun, Cincinnati, Ohio, and Mr. August Busck of the United States Bureau of Entomology, Washington, D. C. They are always very willing and generous with whatever information they can offer. Without the assistance of these eastern specialists, systematic work on Microlepidoptera in the West would be impossible.